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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	R.D. Thompson et al.	Attorney Docket No.:	MSFT115609
Application No.:	09/672,675	Group Art Unit:	2175
Filed:	September 28, 2000	Examiner:	A.J. Neveen
Title:	SYSTEM AND METHOD FOR IMPLEMENTING A CONDITIONAL PAYLOAD SERVER		

RESPONSE

Seattle, Washington 98101

February 5, 2004

TO THE COMMISSIONER FOR PATENTS:

In response to the Examiner's action dated September 11, 2003, applicants submit the following remarks.

REMARKS

I. Introduction

Claims 1-28 are pending in the present application. In a September 11, 2003, Office Action (hereinafter "Office Action"), Claims 17-18 and 22-23 were rejected under 35 U.S.C. § 102(e) as unpatentable over U.S. Pub. No. 2003/0037041 to Hertz (hereinafter "Hertz"). Claims 1-16, 19-21, and 24-28 were rejected under 35 U.S.C. § 103(a) as unpatentable over Hertz in view of U.S. Patent No. 5,806,061 to Chaudhuri et al. (hereinafter "Chaudhuri et al.").

For the following reasons, applicants respectfully submit that Claims 17-18 and 22-23 are not anticipated by Hertz. Further, applicants respectfully submit that Claims 1-16, 19-21, and 24-28 of the present application are not obvious over Hertz in view of Chaudhuri et al. As will be explained in greater detail below, the cited and applied references, alone or in combination, fail to teach or suggest a system and method for implementing a conditional payload server for processing requests for payloads corresponding to a subset of client attributes. Further, the prior art fails to teach delivery of payloads based on subsets of client attributes. Prior to discussing more detailed reasons for applicants' belief that all the claims of the present invention are allowable, a brief description of the present invention and the cited references is presented.

The following discussions of the disclosed embodiments of applicants' invention and the teachings of the applied references are not provided to define the scope or interpretation of any

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of applicants' claims. Instead, such discussed differences are provided to help the U.S. Patent and Trademark Office better appreciate important claim distinctions discussed thereafter.

A. Summary of the Present Invention

The present invention is related to a system and method for implementing a conditional payload server. The system receives a request for a payload containing a subset of client attributes. Also, one or more payloads are obtained wherein each payload defines a condition statement for delivery. Then, the criteria for delivering each payload are mapped to an expression tree. The expression tree is scored and optimized for traversal and mapped into an evaluation tree. Also, the expression tree is mapped to a catalog data structure that contains evaluator value pairs. Through various manipulations of data received, the present invention is able to efficiently and accurately correlate a payload to a subset of client attributes for delivery of the payload.

One embodiment of the present invention is a computer-implemented method that facilitates the processing of payloads. Conditions for delivery of the payload are received and correlated into a catalog data structure. When a request for a payload containing a subset of client attributes is obtained, the catalog is traversed to determine if one or more payloads corresponds to the subset of client attributes. Utilizing the catalog data structure, the present invention processes multiple requests from content providers returning a payload that matches conditions of delivery.

In accordance with another aspect of the present invention, executable modules for correlating a payload with a condition statement for delivering the payload is provided. A master attribute module stores a list of attributes and an evaluator module. The evaluator module is dynamically linked to the master attribute module and contains evaluators corresponding to each attribute in the attribute list. Additionally, a payload module and a conjunction module are also provided. The payload module is dynamically linked to the value module and contains payloads corresponding to each value in the value module. The conjunction module is dynamically linked to the value module and contains conjunction sets corresponding to each value in the value module.

B. U.S. Publication No. 2003/0037041 to Hertz

Hertz is purportedly directed to customized identification of desirable target objects in an electronic media environment. Customized identification of desirable target objects occurs by generating profiles of both target objects and users. Target objects are profiled by analysis of their content and relationship to other target objects. Users are profiled based on their interest in

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target objects. Access to user profiles is controlled by the user who may restrict third-parties from identifying or contacting them. Target object profiles and user profiles are used to generate a customized rank-ordered listing of target objects intended to be of interest to the user. The Hertz system allegedly gives users the ability to select among potentially relevant target objects in the rank-ordered listing for viewing. The customized identification of desirable target objects is purported to narrow the over-abundance of information available in information retrieval systems like databases and large networks.

Hertz fails to teach obtaining a payload that defines a condition statement for delivery and mapping the condition statement into an expression tree and an evaluation tree. Additionally, Hertz fails to teach a method for correlating a payload with a subset of attributes for selecting a payload set.

C. U.S. Patent No. 5,806,061 to Chaudhuri et al.

Chaudhuri et al. is purportedly directed toward reduction of the cost of searching a multimedia repository where the repository contains one or more multimedia objects having at least two different attributes. Searching a database of multimedia objects is vastly different from the techniques used to search a structured database. Matching multimedia objects with search criteria is likely to be an interactive process where a user is repeatedly queried. Further, exact matches do not occur, as every condition or search criteria can only be evaluated on a continuum. Chaudhuri et al. purports to create a system that meets the demands of searching multi-media databases. Further, Chaudhuri et al. implements various techniques to optimize searching of multimedia databases.

However, Chaudhuri et al. fails to teach obtaining one or more payloads wherein each payload defines a condition statement for delivering the payload.

II. The Claims Distinguished

A. Rejection of Claims 17-18 and 22-23 Under 35 U.S.C. § 102(a)

The Office Action rejected Claims 17-18 and 22-23 under 35 U.S.C. § 102(e) as being unpatentable over Hertz. The Office Action asserts that Hertz suggests each and every element in applicants' claims. Applicants respectfully disagree. As described in more detail below, the cited reference fails to disclose or suggest elements of applicants' independent and dependent claims.

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1. Claim 17

Claim 17 reads as follows:

17. A method in a computer system for correlating a payload with a subset of attributes for selecting a payload set, the method comprising:

generating an expression tree having multiple levels corresponding to the subset of attributes:

mapping the expression tree into an evaluation tree;

and correlating the expression tree into the catalog.

As distinctly recited in Claim 17, applicants' method correlates a payload with a subset of attributes for selecting a payload set. In making this correlation, the present invention generates an expression tree containing a subset of attributes and maps the expression tree into an evaluation tree. Also, the expression tree is mapped into a catalog. The type of data structures used and manipulation of information between data structures are designed to meet the demands of optimized correlation between a payload and a subset of attributes for selecting a payload set. The present invention is able to match payloads with client-provided attributes in an efficient manner.

An expression tree is a data structure generated from a condition statement that is in the form of a Boolean-type sentence. An evaluation tree is a data structure mapped from the expression tree that facilitates fast evaluations of conditions. Both an expression tree and evaluation tree include tree nodes that are the logical connectors of the condition statement, and leaf nodes that are the attribute evaluator value pairs of the condition statement. However, an evaluation tree is in a form that facilitates the identification of one or more node paths that will result in the delivery of a payload. In mapping from an expression tree to an evaluation tree, logical and conjunctive operators are identified and placed in the evaluation tree in a way that prevents unnecessary evaluations. In this way, the present invention, and its use of an evaluation tree, efficiently matches a payload to a subset of attributes.

Conversely, Hertz discloses a method of customized electronic identification of desirable objects, such as news articles. In rating target objects, Hertz uses a variety of data structures including trees. These data structures hold vast quantities of information needed to identify desirable objects in the electronic media. However, Hertz does not manipulate client attributes from an expression tree into an evaluation tree as occurs in the present invention.

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The Office Action asserts that Hertz discloses a method for "mapping the expression tree into an evaluation tree" and refers to page 7, paragraph 0099, of Hertz in support of that proposition. The referenced section of Hertz discloses that in the context of a system for customized electronic identification of desirable objects it may be useful to store certain content-specific information with documents and other objects. For example, Hertz discloses that it is useful to store a list of documents that a hypertext document links to in its system (Hertz, page 7, paragraph 0099). While Hertz stores and synthesizes information regarding electronic media in a variety of data structures, it does not map the expression tree to the evaluation tree as recited in Claim 17. Hertz attempts to reduce a set of attributes that describe electronic media into numeric form (Hertz, page 7, paragraph 0101). The reduction of attributes into numeric form assists in storing and scoring the vast quantities of information analyzed by the Hertz system. However, the reduction of attributes into numeric form does not involve mapping an expression tree into an evaluation tree as claimed in the present invention.

The Office Action asserts that Hertz discloses a method for "correlating the expression tree into the catalog" and refers to page 16, paragraph 0172, of Hertz in support of that proposition. A catalog is a specific type of data structure designed for rapid searching. In the present invention, a catalog is created, instantiated with information from the evaluation tree, and traversed to correlate one or more payloads with a subset of client attributes. Hertz fails to disclose the use or manipulation of any catalog data structure. The section of Hertz referenced in the Office Action refers to the information server cataloging of files that contain desirable information. Cataloging desirable objects in an information server is not equivalent to the use and manipulation of a catalog data structure. It follows that Hertz does not disclose the correlation of an expression tree into a catalog.

For at least the above-mentioned reasons, applicants respectfully submit that the Office Action has not established a prima facie case for a Section 102 rejection of Claim 17 and respectfully request that the rejection of Claim 17 and the claims dependent thereon be withdrawn.

2. Claims 18 and 22-23

Since Claim 18 depends from Claim 17, and Claims 23-23 are computer-readable medium and apparatus claims having language that parallels the language of Claim 17, the analysis applied to Claim 17 also applies to these claims. Therefore, applicants respectfully submit that Claims 18 and 22-23 are in condition for allowance for the same reasons as Claim 17. Further, applicants submit that dependent Claim 18 contains additional patentable subject matter as discussed below.

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Claim 18 adds the element in applicants' invention of "optimizing the expression tree prior to mapping the expression tree into an evaluation tree." The Office Action asserts that Hertz teaches optimizing the expression tree prior to mapping the expression tree into an evaluation tree. As discussed above, Hertz fails to teach mapping an expression tree into an evaluation tree. Accordingly, applicants assert that it would not therefore teach optimizing the expression tree for the particular mapping that occurs. Accordingly, the cited reference fails to teach or suggest the additional element recited in Claim 18.

B. Rejection of Claims 1-16, 19-22, and 24-28 Under 35 U.S.C. § 103(a)

The Office Action rejected Claims 1-16, 19-22, and 24-28 under 35 U.S.C. § 103(a) as being unpatentable over Hertz in view of Chaudhuri et al. The Office Action asserts that the combination of Hertz and Chaudhuri et al. suggests each and every element of applicants' claims. Applicants respectfully disagree. As described in more detail below, the cited references fail to disclose or suggest certain elements of the independent and dependent claims.

1. Claim 1

Claim 1 reads as follows:

> 1. A method in the computer system for correlating a subset of attributes to one or more payloads, the method comprising:
>
> obtaining a request for payload corresponding to a subset of client attributes;
>
> obtaining one or more payloads, wherein each payload defines a condition statement for delivering the payload;
>
> correlating the condition statement into a catalog, wherein the catalog includes an attribute list, an evaluator list, a value list and a payload list;
>
> traversing the catalog to determine one or more payloads corresponding to the subset of client attributes; and
>
> returning the one or more payloads.

Claim 1 recites elements for implementation of the present invention comprising "obtaining a request for payload corresponding to a subset of client attributes; [and] obtaining one or more payloads, wherein each payload defines a condition statement for delivering the payload." By matching client attributes with the needs of advertisers and other payload

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providers, the present invention serves as an intermediary. Requests for payloads are obtained and matched to the needs of payload providers.

The Office Action alleges that Hertz discloses "a method in the computer system for correlating a subset of attributes to one or more payloads, the method comprising: obtaining a request for payload corresponding to a subset of client attributes." Further, the Office Action alleges that Hertz discloses "traversing the catalog to determine one or more payloads corresponding to the subset of client attributes." However, as described above, Hertz fails to disclose the use or manipulation of a catalog. The cited reference to Hertz in the Office Action only discloses a method for profiling unknown users with the instantiation of a decision tree.

Hertz fails to disclose obtaining a request for a payload corresponding to a subset of client attributes. In the Hertz system, a payload is not received for matching to a subset of client attributes. Instead, the system observes user behavior and connections between electronic media to identify desirable target objects. The method used for identifying desirable target objects does not involve obtaining a payload for delivery as the Hertz system does not act as an intermediary between payload providers and content providers. Users may be queried for "their relevance feedback on all target objects in the system" (Hertz, page 15, paragraph 0164). However, tracking associative interests of users in the Hertz system is not the same as obtaining a subset of client attributes for correlation to a payload as claimed in the present invention.

The Office Action alleges that Chaudhuri et al. teaches "obtaining one or more payloads, wherein each payload defines a condition statement for delivering the payload and correlating the condition statement into a catalog." Chaudhuri et al. does not disclose the delivery of payloads containing condition statements as claimed in the present invention. Instead, the patent purports to disclose a method for reducing the time of searching multimedia repositories. In contrast to the present invention, the Chaudhuri et al. system does not act as an intermediary delivering payloads to content providers. Users interact directly with the Chaudhuri et al. search interface, defining search criteria of interest. Input to the system includes searchable attributes like color histogram, texture, and associated text (Chaudhuri et al., paragraph 4, lines 61-63). The input of searchable attributes is compared to multimedia items in the database for the closest matches. In contrast to the present invention, absolute conditions that are necessary for the delivery of a payload are not defined.

For at least the above-mentioned reasons, applicants respectfully submit that the Office Action has not established a prima facie case for the obviousness rejection of Claim 1 and respectfully request that the rejection of Claim 1 and the claims dependent thereon be withdrawn.

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2. Claims 2-16

Since Claims 2-14 depend from Claim 1 and Claims 15-16 are computer-readable medium and apparatus claims having language that parallels the language of Claims 1-14, the analysis applied to Claim 1 also applies to these claims. Therefore, applicants respectfully submit that Claims 1-16 are in condition for allowance for the same reasons as Claim 1. Further, applicants submit that dependent Claims 2-14 contain additional patentable subject matter as discussed below.

Dependent Claims 2 and 5-10 add to the nonobviousness of applicants' invention the generation of "an expression tree corresponding to the condition statement;" the mapping of "the expression tree into an evaluation tree;" and the correlation of "the evaluation tree into the catalog." The Office Action asserts that Hertz teaches generation of an expression tree corresponding to the condition statement; the mapping of an expression tree into an evaluation tree; and correlation of the evaluation tree into the catalog. As discussed above, the cited references, alone or in combination, fail to teach or suggest the additional elements recited in Claims 2 and 5-10.

Dependent Claims 3-4 add to the nonobviousness of applicants' invention, including the element of "optimizing the expression tree prior to mapping the expression tree into an evaluation tree." The Office Action asserts that Hertz teaches optimizing the expression tree prior to mapping the expression tree to an evaluation tree. As discussed above, Hertz fails to teach mapping an expression tree into an evaluation tree. Accordingly, applicants assert that it would not therefore teach optimizing the expression tree for the particular mapping that occurs. Accordingly, the cited reference fails to teach or suggest the additional elements recited in Claims 3-4.

Dependent Claims 11-13 add to the nonobviousness of applicants' invention, the addition of the payload to a master payload list if a payload exists. The Office Action asserts that Chaudhuri et al. teaches adding the payload to a master payload list when the payload exists. As discussed above, Chaudhuri et al. fails to teach obtaining or delivery of a payload. Accordingly, applicants assert that it would not therefore teach adding the payload to a master payload list when the payload exists. Accordingly, the cited reference fails to teach or suggest the additional elements recited in Claims 11-13.

Dependent Claim 14 adds to the nonobviousness of applicants' invention the elements of "the payload set is advertisement media and wherein the client attributes are client profile data attributes." The Office Action asserts that Hertz teaches the payload set as an advertisement media. As discussed above, Hertz fails to teach obtaining or delivery of a payload. Accordingly,

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applicants assert that it would not therefore teach the payload set as an advertisement media. Accordingly, the cited reference fails to teach or suggest the additional elements recited in Claim 14.

3. Claim 24

Claim 24 reads as follows:

> 24. A computer-readable medium having computer-executable modules for correlating payloads with a condition statement for delivering the payload, the modules comprising:
>
> a master attribute module for storing a list of attributes;
>
> an evaluator module, dynamically linked to the attribute module, and containing evaluators corresponding to each attribute in the attribute list;
>
> a value module, dynamically linked to the evaluator module, and containing values corresponding to each evaluator in the evaluation module;
>
> a payload module, dynamically linked to the value module, and containing payload sets corresponding to each value in the value module, wherein the payload module may be empty; and
>
> a conjunction module dynamically linked to the value module and containing conjunction sets corresponding to each value in the value module, wherein the conjunction list may be empty.

Claim 24 was rejected based on the same argument described previously that Hertz delivers payloads to content providers. The Office Action states that Hertz teaches "modules for correlating payloads with a condition statement for delivering the payload." Hertz simply does not involve obtaining a payload for delivery. As described above, the system does not act as an intermediary between payload providers and content providers. Also, Hertz does not disclose a master attribute module, a value module, a payload module, or a conjunction module for correlating payloads with condition statements as claimed in the present invention. As previously described, Hertz discloses a method of customized electronic identification of desirable objects. The system observes user behavior and builds a profile to identify objects most likely of interest to the particular user. When the user searches for electronic media, the Hertz system identifies items that are the closest match to search criteria based on the user profile. In contrast to the present invention, absolute conditions that are necessary for delivery of

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a payload are not defined. Accordingly, the cited reference fails to teach or suggest all the elements recited in Claim 24.

For at least the above-mentioned reasons, applicants respectfully submit that the Office Action has not established a prima facie case for the obviousness rejection of Claim 24 and respectfully request that the rejection of Claim 24 and the claims dependent thereon be withdrawn.

4. Claims 25-28

Since Claims 25-28 depend from Claim 24, the analysis applied to Claim 24 also applies to these claims. Therefore, applicants respectfully submit that Claims 25-28 are in condition for allowance for the same reasons as Claim 24. Further, applicants submit that dependent Claims 25-28 contain additional patentable subject matter as discussed below.

Dependent Claims 25-26 and 28 add to the nonobviousness of applicants' invention, including the elements of "one or more attribute modules for storing additional attributes." The Office Action asserts that Hertz teaches one or more attribute modules for storing additional attributes. As discussed above, Hertz does not teach modules for storing attributes. The Hertz system only tracks user behavior to assist in identification of desirable target objects. Accordingly, the cited references, alone or in combination, fail to teach or suggest the additional elements recited in Claims 25-26 and 28.

Dependent Claim 27 adds to the nonobviousness of applicants' invention the element of "the payload set is advertisement content and when the attributes are client profile data attributes." The Office Action asserts that Hertz teaches the payload set as an advertisement media. As discussed above, Hertz fails to teach obtaining or delivery of a payload. Accordingly, applicants assert that Hertz would not therefore teach the payload as an advertisement media. Accordingly, the cited reference fails to teach or suggest the additional elements recited in Claim 27.

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CONCLUSION

In view of the remarks above, applicants respectfully submit that the present application is in condition for allowance, Reconsideration and reexamination of the application, and allowance of the claims at an early date is solicited. If the Examiner has any questions or comments concerning this matter, the Examiner is invited to contact the applicants' undersigned attorney at the number below.

Respectfully submitted,

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